

Effect of a commercial rice pesticide on embryonic and larval development of climbing perch (*Anabas testudineus*)

ABSTRACT

Pesticides are chemicals that are used to kill pests, including insects, rodents and fungi. Pesticides are very toxic to other organisms, including humans, animals and environments. This research was aimed to examine the effect of a commercial brand rice pesticide on embryonic and larval development of *Anabas testudineus*. The treatment used in this experiments were divided into two; embryonic and larval development. For embryonic development, treatments were prepared in different concentrations of a commercial brand rice pesticide, Brand X, as follows: control, 50 ppm, 100 ppm, 150 ppm and 200 ppm. Embryonic development was observed from 0 hour until hatched, approximately 24 hours. Meanwhile, for larval development, treatments were prepared in different concentration of Brand X as follows: control, 10 ppm, 30 ppm, 50 ppm, 70 ppm, 100 ppm, 150 ppm and 200 ppm. The results showed deformities found in embryonic development in more than or at 100 ppm of the pesticide. Larval development results showed the behavioural changes in the larval and all the larval died after 5 days of pesticide treatments. Gills histology of the fish larvae treated with the pesticide showed degradation, necrosis, adjacent of secondary lamellae and blood congestion. Furthermore, treatment at 10 ppm of the pesticide in larvae also showed bone deformity. This study showed the harmful effects of rice pesticides to the aquatic organisms and the pesticides is not suitable to be used in a high concentration (>50 ppm) as it will disrupt biodiversity for a sustainable agriculture.

Keyword: *Anabas testudineus*; Embryonic development; Histology; Larval development; Pesticide

